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EXAMINER

DRENNAN, BARRY T

ART UNIT

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4133

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,130	<b>Applicant(s)</b> MARIANI ET AL.	
	<b>Examiner</b> Barry Drennan	<b>Art Unit</b> 4133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/11/2007, 4/11/2007</u> .                                    | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

1. This application claims benefit as a national stage application filed under the Patent Cooperation Treaty to International Application PCT/SG03/00239, filed 8 October 2003.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: System for authenticating identity by performing face recognition and identity badge recognition from the same image.

### ***Claim Objections***

3. Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim recites only the further limitation, "wherein the face data database comprises the identification code database." However, the same limitation also appears in parent claim 12.

4. Claim 12 is objected to because of the following informality: the amended version of the claim includes the phrase "according to claims 10..." where only one

Art Unit: 4133

parent claim is specified. Appropriate correction (amending the word "claims" to be "claim") is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, for having undue breadth. A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor. *In re Hyatt*, 708 F.2d 712, 714-715, 218 USPQ 195, 197. See also MPEP 2164.08(a)).

7. Claim 38 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. Claim 38 appears to invoke 35 U.S.C. 112, sixth paragraph, in the means-plus-function limitation "computer readable program code image processing means for..." which necessarily requires the presence of structure given in the specification. However, the claim recites that the structure associated with

Art Unit: 4133

the limitation is embodied on a “computer usable medium”. The specification lacks a description enabling one of ordinary skill in the art to make and use a computer usable medium that further embodies any physical structure as required by the means-plus-function claim, in view of the Wands factors (In re Wands, 8 USPQ2d 1400, 1404), because such enabling knowledge would be well outside the field of expertise of any practitioner of ordinary skill in the art to which the invention is drawn.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 8, 12, 13, 15, 27, 31, 32, 45, 49, and 50 are rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claims 8, 27, and 45 recite the limitation "the tag". There is insufficient antecedent basis for this limitation in these claims.

11. Claim 12 recites the limitation "the face data database". There is insufficient antecedent basis for this limitation in the claim.

12. Claim 13 recites the limitation "the face data database". There is insufficient antecedent basis for this limitation in the claim.

13. Claims 15, 32, and 50 recite the limitation “the face comparator means”. There is insufficient antecedent basis for this limitation in these claims.

14. Claims 31 and 49 recite the limitation “the stored face data”. There is insufficient antecedent basis for this limitation in these claims.

***Claim Rejections - 35 USC § 101***

15. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

16. Claims 1-17 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 1-17 appear to define an apparatus. However, the specification indicates that the invention may be embodied as pure software ("The components and in particular their functionality, can be implemented in either hardware or software," p. 19, lines 22-24). Therefore, the claim as a whole appears to be nothing more than a collection of software elements, thus defining functional descriptive material *per se*.

17. Claims 19-37 are rejected under 35 U.S.C. 101 because they do not fall within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. In order for a process to be "tied" to another statutory category, the structure of another statutory category should be positively recited in a step or steps

Art Unit: 4133

significant to the basic inventive concept, and not just in association with statements of intended use or purpose, insignificant pre- or post-solution activity, or implicitly.

***Claim Rejections - 35 USC § 102***

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

19. Claims 1-4, 6, 10-12, 14, 15, 18-22, 24, 25, 29-32, 37-41, 43, 47-50, and 53 are rejected under 35 U.S.C. 102(e) as being anticipated by Wilson et al., U.S. Patent Application Number 10/092,883 (published as 2003/0169337, filed 8 March 2002, hereinafter Wilson).

20. With respect to claim 1, Wilson discloses an apparatus for authenticating the identity of a person, comprising:

image processing means for determining an identification code from within an image and for determining face data of a face within the same image ("a computer that is monitoring the camera recognizes a bar code or other symbols on the badge," paragraph 14; "The simplest is comparison... of the face of the badge holder in the digital image with the image on record," paragraph 28; "The access control computer would then contain face verification software to compare the face...", paragraph 29).

21. With respect to claim 2, Wilson discloses the apparatus according to claim 1, wherein the image processing means is operable to read said identification code from printed data within said image ("a computer that is monitoring the camera recognizes a bar code or other symbols on the badge," paragraph 14).

22. With respect to claim 3, Wilson discloses the apparatus according to claim 1, wherein the image processing means is operable to locate a tag within said image (*supra*, paragraph 14, inherent in reading the code from the image).

23. With respect to claim 4, Wilson discloses the apparatus according to claim 3, wherein the image processing means is operable to determine said identification code from said tag within said image ("The badge reading computer interprets the bar code on the ID badge...", paragraph 25).

24. With respect to claim 6, Wilson discloses the apparatus according to claim 3, wherein the image processing means is operable to determine said identification code from said tag when the tag is a specific area of any one of: paper, plastic, metal, fabric, an item of clothing and skin (*supra*, paragraph 14, and inherent in that identification badges are known in the art to be usually made of paper or plastic, and occasionally of metal, fabric, an item of clothing, or skin, and the apparatus for reading of any of these elements would be the same).



25. With respect to claim 10, Wilson discloses the apparatus according to claim 1, further comprising identification code comparator means for matching the determined identification code with a stored identification code in an identification code database (“...and retrieves information about the badge and badge holder from the database,” paragraph 25, and Fig. 1 #18).

26. With respect to claim 11, Wilson discloses the apparatus according to claim 1, further comprising face comparator means for matching the determined face data with stored face data in a face data database (“...and retrieves information about the badge and badge holder from the database,” paragraph 25, and Fig. 1 #18).

27. With respect to claim 12, Wilson discloses the apparatus according to claim 10, wherein the face data database comprises the identification code database (Fig. 1 #18, showing only one database; see also paragraphs 25 and 29).

28. With respect to claim 14, Wilson discloses the apparatus according to claim 12, wherein the face data in the face data database is associated with specific identification codes in the identification code database (*supra*, paragraphs 28 and 29).

29. With respect to claim 15, Wilson discloses the apparatus according to claim 14, further comprising authentication means to confirm identity authentication when the face

Art Unit: 4133

comparator means matches the determined face data with stored face data in the face data database and the identification code comparator means matches the determined identification code with the stored identification code associated with the matched stored face data (*supra*, paragraphs 25, 28, and 29).

30. With respect to claim 18, Wilson discloses the apparatus according to claim 1, further comprising imaging means for providing said image to said image processing means (“combining the badge reading function with the imaging function in a single camera,” paragraph 26).

31. With respect to claim 25, Wilson discloses the method according to claim 21, wherein said tag is part of a garment worn by the person in the image (*supra*, paragraph 14, inherent in that identification badges are frequently worn by the user about the neck as a garment or otherwise attached to another piece of clothing and worn in that fashion as a garment).

32. Claims 19-22, 24, 29-32, and 37 are rejected for the same reasons set forth in the corresponding apparatus in claims 1-4, 6, 10, 11, 14, 15, and 18, respectively.

33. Claims 38-41, 43, 47-50, and 53 are rejected for the same reasons set forth in the corresponding apparatus in claims 1-4, 6, 10, 11, 14, 15, and 18, respectively.

***Claim Rejections - 35 USC § 103***

34. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35. Claims 5, 23, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson as applied to claims 3, 21, and 40 above, respectively, and further in view of Trew et al., U.S. Patent 5,561,718 (issued 1 October 1996, hereinafter Trew).

36. With respect to claim 5, Wilson discloses the apparatus of claim 3, but does not disclose finding the location of the face in an image based on the location of the identification badge.

However, Trew discloses a system which uses the location of certain already-found reference features in an image (e.g., the boundary of a face, col. 4 lines 40-61) to find other features in the same image (e.g., the eyes and mouth of that face, col. 4 lines 62-63), based on foreknowledge of the geometry of the image (e.g., the eyes and mouth are arranged in a triangle within the face boundary).

Additionally, one of ordinary skill in the art would understand that identification badges are frequently worn in the chest region, such as on a lanyard about the neck or attached to a shirt pocket, and that the tag could therefore serve as a reference point for aid in finding the face, or vice versa.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the apparatus of Wilson with the method of

Art Unit: 4133

using certain features in an image to find other features in the same image based on foreknowledge of the image's geometry as disclosed by Trew, motivated by the improved rate of success in finding the secondary features and the decrease in time spent searching portions of the image where the secondary features are not expected to be found.

37. Claims 23 and 42 are rejected for the same reasons set forth in the corresponding apparatus in claim 5.

38. Claims 7, 9, 26, 28, 44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson as applied to claims 1, 1, 19, 19, 38, and 38 above, respectively, and further in view of Lin, U.S. Patent 6,108,437 (issued 22 August 2000, hereinafter Lin).

39. With respect to claim 7, Wilson discloses the apparatus of claim 1, and discloses using face verification software on the image, but does not specifically disclose locating the face within the image.

However, Lin discloses locating the face within the image as part of the face recognition process (Lin, abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the apparatus of Wilson with the face locating process of Lin, per the suggestion given by Wilson to use face verification software as part of the apparatus therein (Wilson, paragraph 29).

Art Unit: 4133

40. With respect to claim 9, Wilson discloses the apparatus of claim 1, and discloses using face verification software on the image, but does not specifically disclose extracting facial features from the face.

However, Lin discloses extracting facial features as part of the face recognition process (Lin, abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the apparatus of Wilson with the face locating process of Lin, per the suggestion given by Wilson to use face verification software as part of the apparatus therein (Wilson, paragraph 29).

41. Claims 26 and 44 are rejected for the same reasons set forth in the corresponding apparatus in claim 7.

42. Claims 28 and 46 are rejected for the same reasons set forth in the corresponding apparatus in claim 9.

43. Claims 8, 27, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson and Lin as applied to claims 7, 26, and 44 above, and further in view of Trew.

44. With respect to claim 8, Wilson and Lin disclose the apparatus of claim 7, but do not disclose finding the location of the face in an image based on the location of the identification badge.

However, Trew discloses a system which uses the location of certain already-found reference features in an image (e.g., the boundary of a face, col. 4 lines 40-61) to

Art Unit: 4133

find other features in the same image (e.g., the eyes and mouth of that face, col. 4 lines 62-63), based on foreknowledge of the geometry of the image (e.g., the eyes and mouth are arranged in a triangle within the face boundary).

Additionally, one of ordinary skill in the art would understand that identification badges are frequently worn in the chest region, such as on a lanyard about the neck or attached to a shirt pocket, and that the tag could therefore serve as a reference point for aid in finding the face, or vice versa.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the apparatus of Wilson and Lin with the method of using certain features in an image to find other features in the same image based on foreknowledge of the image's geometry as disclosed by Trew, motivated by the improved rate of success in finding the secondary features and the decrease in time spent searching portions of the image where the secondary features are not expected to be found.

45. Claims 26 and 44 are rejected for the same reasons set forth in the corresponding apparatus in claim 8.

46. Claims 16, 17, 33-36, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson as applied to claims 10, 11, 29, 29, 30, 30, 47, and 48 above, respectively, and further in view of The GNU Pascal Manual (retrieved from [http://www.math.umn.edu/systems\\_guide/gcc-2.95.3/gpc\\_9.html](http://www.math.umn.edu/systems_guide/gcc-2.95.3/gpc_9.html), as archived by The Internet Archive, [www.archive.org](http://www.archive.org), on 16 July 2002, hereinafter GNU).

Art Unit: 4133

47. With respect to claims 16 and 17, Wilson discloses the limitations of claim 10 and 11, respectively, but does not disclose stopping means for preventing determination of the face data if the badge comparison provides no match, or vice versa.

However, GNU discloses a well-known method in the art whereby the second element of a logical “and” operation is not executed if the first element returns false, since the final answer of the “and” operation can never be true once one element is determined to be false (also known as “short-circuiting”; see section of manual chapter 9 concerning the operator “and\_then”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the apparatus of Wilson with the method disclosed by GNU, motivated by an increase in computational efficiency (*supra*, GNU).

48. Claims 33, 34, and 51 are rejected for the same reasons set forth in the corresponding apparatus in claim 16.

49. Claims 35, 36, and 52 are rejected for the same reasons set forth in the corresponding apparatus in claim 17.

### ***Conclusion***

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Williams, J.L., U.S. Patent 4,581,634.

LaFreniere, R.F., U.S. Patent 4,821,118.

Goldberg, David A., U.S. Patent Application Publication 2003/0118216 A1.

Art Unit: 4133

Goldberg, et al., International Patent Application Publication WO 98/10358 A1.

Holt, et al., International Patent Application Publication WO 99/36836 A1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Drennan whose telephone number is 571-270-7262. The examiner can normally be reached on Monday through Thursday and alternate Fridays from 8:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Abul Azad can be reached on 571-272-7599. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Barry Drennan/  
Examiner, Art Unit 4133

/ABUL AZAD/  
Supervisory Patent Examiner, Art  
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Application/Control Number: 10/575,130  
Art Unit: 4133

Page 16